



Kentucky Department for Public Health

KY17-089 - Acute Hepatitis A Outbreak Weekly Report

Morbidity and Mortality Weekly Report (MMWR) Week 30, 2018

July 22, 2018 – July 28, 2018

Brief Description of Outbreak: In November 2017, the Kentucky Department for Public Health (DPH) identified an outbreak of acute hepatitis A. The increase in cases observed in Kentucky was well over the 10-year average of reported hepatitis A cases, and several cases have been infected with hepatitis A virus (HAV) strains genetically linked to outbreaks in California, Utah, and Michigan. Similar to hepatitis A outbreaks in other states, the primary risk factors have been homelessness and illicit drug use. A contaminated food source has not been identified, and HAV transmission is believed to have occurred through person-to-person contact. Below is a weekly and cumulative update on the outbreak.

In accordance with 902 KAR 2:020, cases of acute hepatitis A should be reported within 24 hours.

The case definition used for outbreak-associated acute hepatitis A cases is available upon request.

Table 1: Summary of Outbreak-Associated Acute Hepatitis A Cases*

Update for Week 30:		Total Case Counts: 8/1/2017 – 7/28/2018:	
Number of new cases (n=48):	Confirmed - 0 Probable - 26 Suspect - 22	Total number of cases (n=1276):	Confirmed - 441 Probable - 538 Suspected - 297
Number of counties with new cases:	25	Total number of counties with cases:	76 (63% of KY counties)
Number of cases with specimens submitted for genotyping where results are available:	10	Number of cases with specimens submitted for genotyping where results are available:	465 (36%)
Number of cases with genotype 1B among those with genotype testing:	9	Total number of cases with genotype 1B among those with genotype testing:	423 (91% of those tested)
Number of Hospitalizations:	31	Total Number of Hospitalizations:	722 (57%)
Number of deaths Reported [†] :	0	Total number of deaths reported [†] :	8 (<1%)

* Cases are reported based on date of specimen collection

[†] Deaths are defined as any outbreak-associated acute hepatitis A case with documentation of hepatitis A as a contributing factor to the individual's death.

Table 2: Cumulative Distribution of Cases by County

KY17-089 Distribution Of Outbreak-Associated Acute Hepatitis A Cases, by County, August 1, 2017 – July 28, 2018*^#					
County	Total number of cases reported	Number of confirmed cases	Number of probable cases	Number of suspected cases	Incident Rate per 100,000 population
Adair	2	0	1	1	10.3
Allen	5	0	5	0	23.9
Anderson	5	0	3	2	22.2
Ballard	8	3	2	3	99.5
Barren	1	1	0	0	2.3
Bell	3	0	1	2	11.2
Boone	6	0	5	1	4.6
Bourbon	2	0	2	0	10.0
Boyd	147	79	37	31	306.4
Boyle	3	0	1	2	10.0
Breathitt	1	0	1	0	7.7
Bullitt	46	23	17	6	57.3
Butler	2	0	0	2	15.6
Campbell	6	1	4	1	6.5
Carlisle	1	0	1	0	20.6
Carroll	1	0	0	1	9.3
Carter	102	28	55	19	375.8
Casey	1	1	0	0	6.3
Christian	1	1	0	0	1.4
Clark	2	0	2	0	5.5
Clay^	1	0	1	0	4.9
Daviess	1	0	0	1	1.0

**KY17-089 Distribution Of Outbreak-Associated Acute Hepatitis A Cases,
by County, August 1, 2017 – July 28, 2018*^#**

County	Total number of cases reported	Number of confirmed cases	Number of probable cases	Number of suspected cases	Incident Rate per 100,000 population
Edmonson	1	0	1	0	8.2
Elliott	8	0	2	6	106.3
Estill	1	0	1	0	7.0
Fayette	6	2	2	2	1.9
Fleming	3	0	0	3	20.8
Floyd	10	0	4	6	27.6
Franklin	9	0	7	2	17.8
Garrard	3	0	1	2	17.1
Grant	10	3	5	2	40.0
Grayson	6	2	3	1	22.8
Greenup	50	21	17	12	140.8
Hardin	23	5	6	12	21.3
Hart	1	0	1	0	5.3
Henry	6	1	3	2	37.5
Hickman^	1	0	0	1	22.1
Hopkins	1	0	0	1	2.2
Jackson	1	0	1	0	7.4
Jefferson	564	238	226	100	73.1
Jessamine	1	0	0	1	1.9
Johnson	5	0	2	3	22.1
Kenton	9	2	5	2	5.4
Knott	2	0	2	0	13.1
Knox	1	0	0	1	3.2

**KY17-089 Distribution Of Outbreak-Associated Acute Hepatitis A Cases,
by County, August 1, 2017 – July 28, 2018*^#**

County	Total number of cases reported	Number of confirmed cases	Number of probable cases	Number of suspected cases	Incident Rate per 100,000 population
Laurel	8	0	6	2	13.3
Lawrence	4	1	1	2	25.4
Leslie	1	0	0	1	9.7
Lincoln	3	1	0	2	12.3
Logan	1	0	1	0	3.7
Madison	2	1	0	1	2.2
Marion	4	2	1	1	20.6
Marshall	2	0	1	1	6.4
Martin	4	0	1	3	34.9
McCracken	5	2	1	2	7.6
Meade	8	1	1	6	28.4
Menifee	2	0	0	2	31.0
Metcalfe	1	0	1	0	9.9
Montgomery	38	1	27	10	136.1
Morgan	1	0	1	0	7.6
Nelson	14	3	6	5	30.7
Ohio	4	0	2	2	16.5
Oldham	6	3	2	1	9.0
Pendleton	1	0	1	0	6.9
Powell	2	0	2	0	16.2
Pulaski	1	0	1	0	1.6
Rowan	14	0	9	5	57.1
Russell	1	0	0	1	5.6

KY17-089 Distribution Of Outbreak-Associated Acute Hepatitis A Cases, by County, August 1, 2017 – July 28, 2018*^#					
County	Total number of cases reported	Number of confirmed cases	Number of probable cases	Number of suspected cases	Incident Rate per 100,000 population
Shelby	13	4	6	3	27.4
Simpson	3	0	3	0	16.6
Spencer	4	3	1	0	21.6
Taylor	10	2	7	1	39.3
Warren	16	5	9	2	12.4
Washington	1	0	0	1	8.2
Whitley	32	1	20	11	88.4
Wolfe^	1	0	0	1	13.8
Total Number of Cases:	1276	441	538	297	28.6

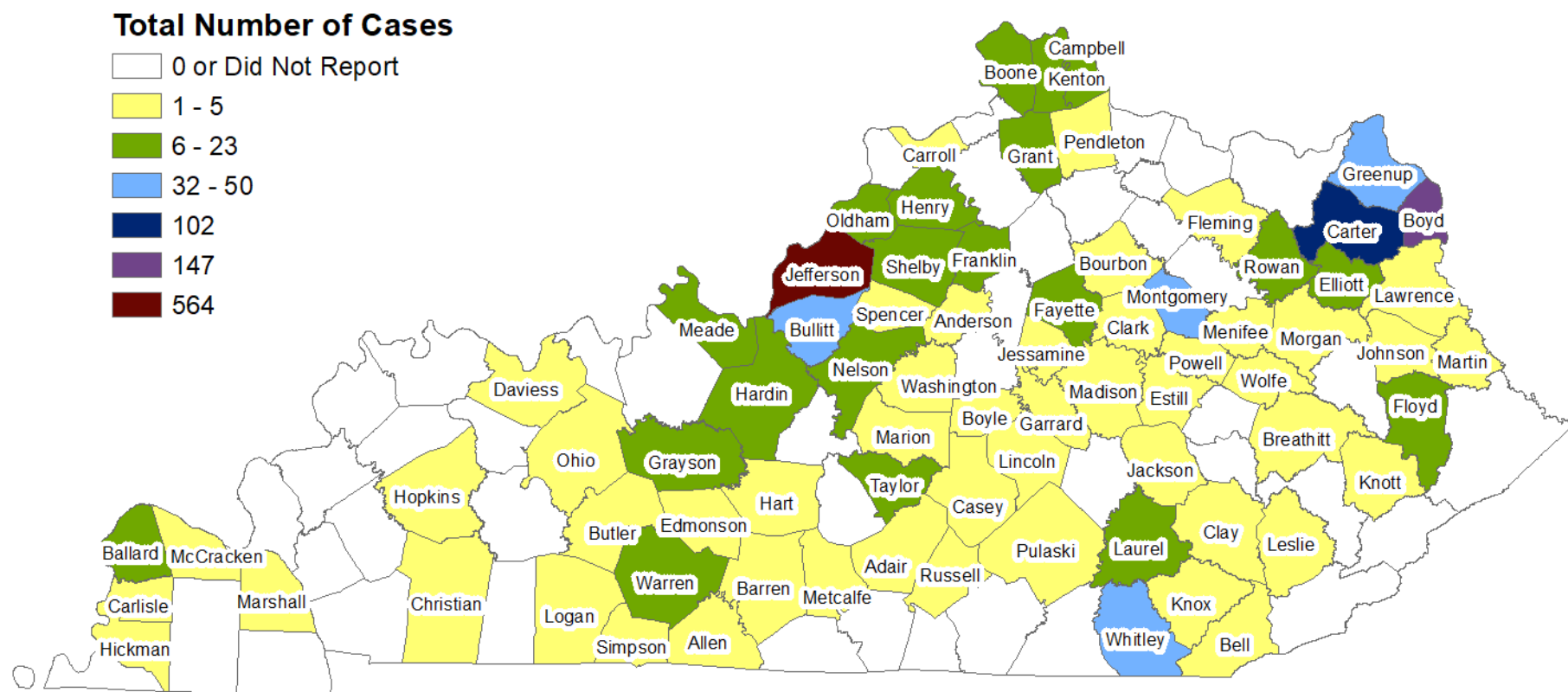
* Cases are reported based on date of specimen collection.

^ Denotes a county where cases have not been previously identified.

As genotyping results become available, cases may be excluded if they do not meet the outbreak case definition.
Cases in the following counties have been excluded from the outbreak case count this week: None.

Figure 1: Geographic Distribution of Outbreak-Associated Cases by County

KY17-089 Distribution of Outbreak-Associated Acute Hepatitis A Cases by County, August 1, 2017 - July 28, 2018

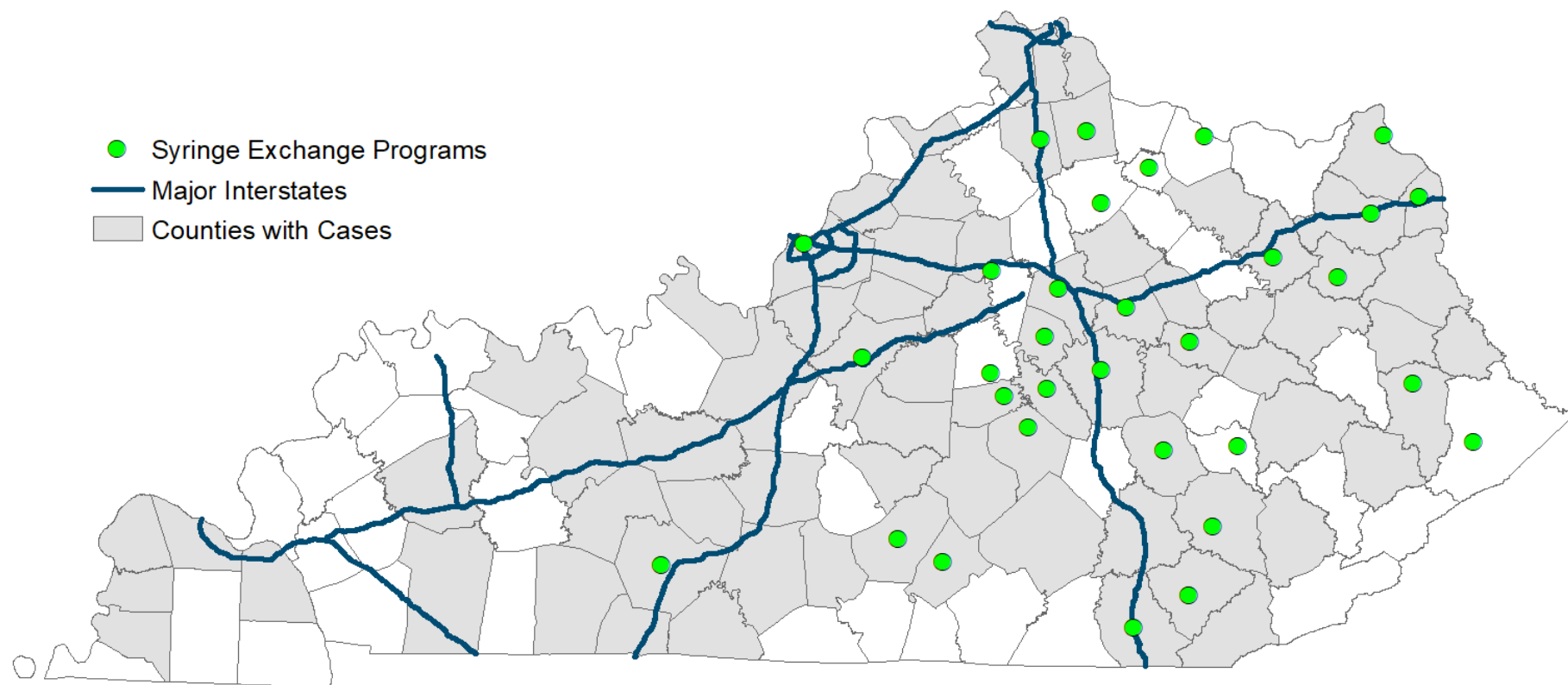


n = 76 counties with outbreak-associated cases

Counties where cases have not previously been identified: Clay, Hickman, Wolfe.

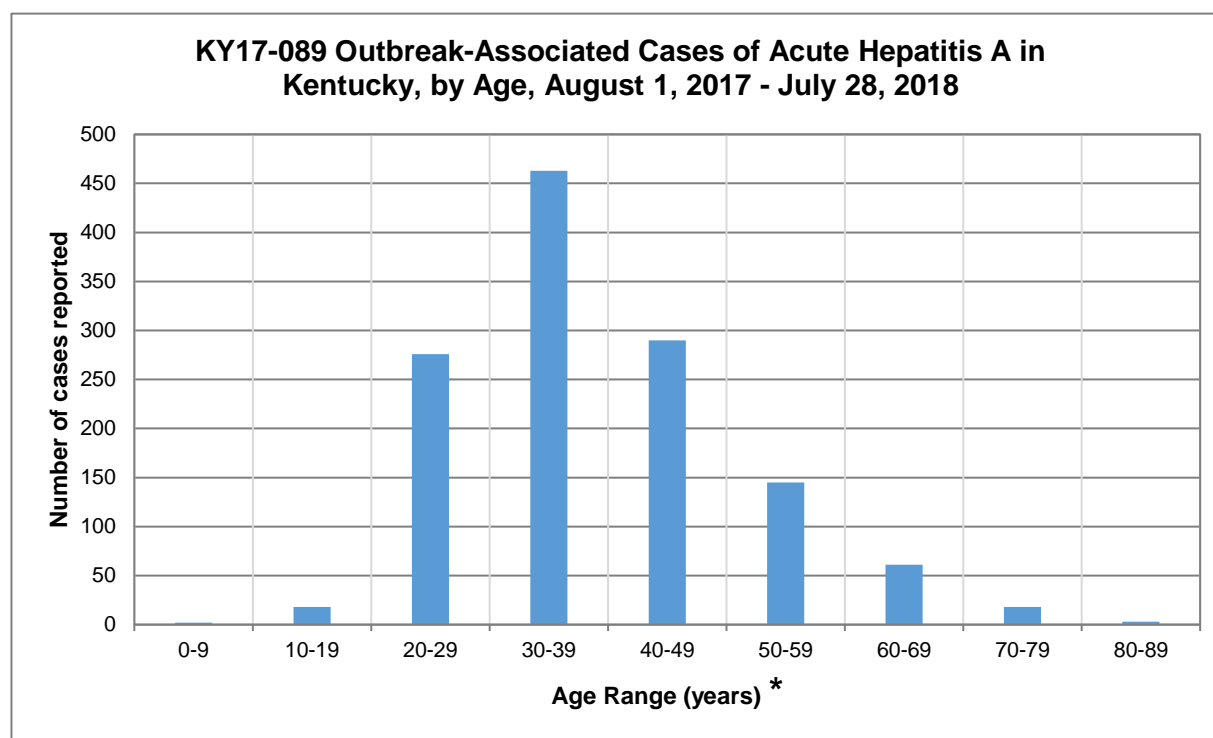
Figure 2: Major Interstates and Syringe Exchange Programs in Counties Reporting Outbreak-Associated Cases

**KY17-089 Major Interstates and Syringe Exchange Programs In
Counties Reporting Outbreak-Associated Acute Hepatitis A Cases,
August 1, 2017 - July 28, 2018**



Major Interstates include I-24, I-264, I-265, I-275, I-471, I-64, I-65, I-69, I-71, I-75, Martha Lane Collins Bluegrass Parkway, and Wendell H Ford Western KY Parkway

Figure 3: Outbreak-Associated Cases by Age



* The mean age of cases is 38.5 years, and the median age is 37.0 years.

Table 3: Frequent Risk Factors of Outbreak-associated Cases

KY17-089 Risk Factors of Outbreak-Associated Acute Hepatitis A Cases, August 1, 2017 – July 28, 2018 ^{#^}	
Risk Factor	Number of Cases Reporting Risk Factor (n=1050) ^{* †}
Homelessness + No Illicit Drug Use	15 (1.4%)
Illicit Drug Use + No/Unk Homelessness	630 (60%)
Homelessness + Illicit drug use	147 (14%)
No Outbreak-Related Risk Factors	237 (22.6%)

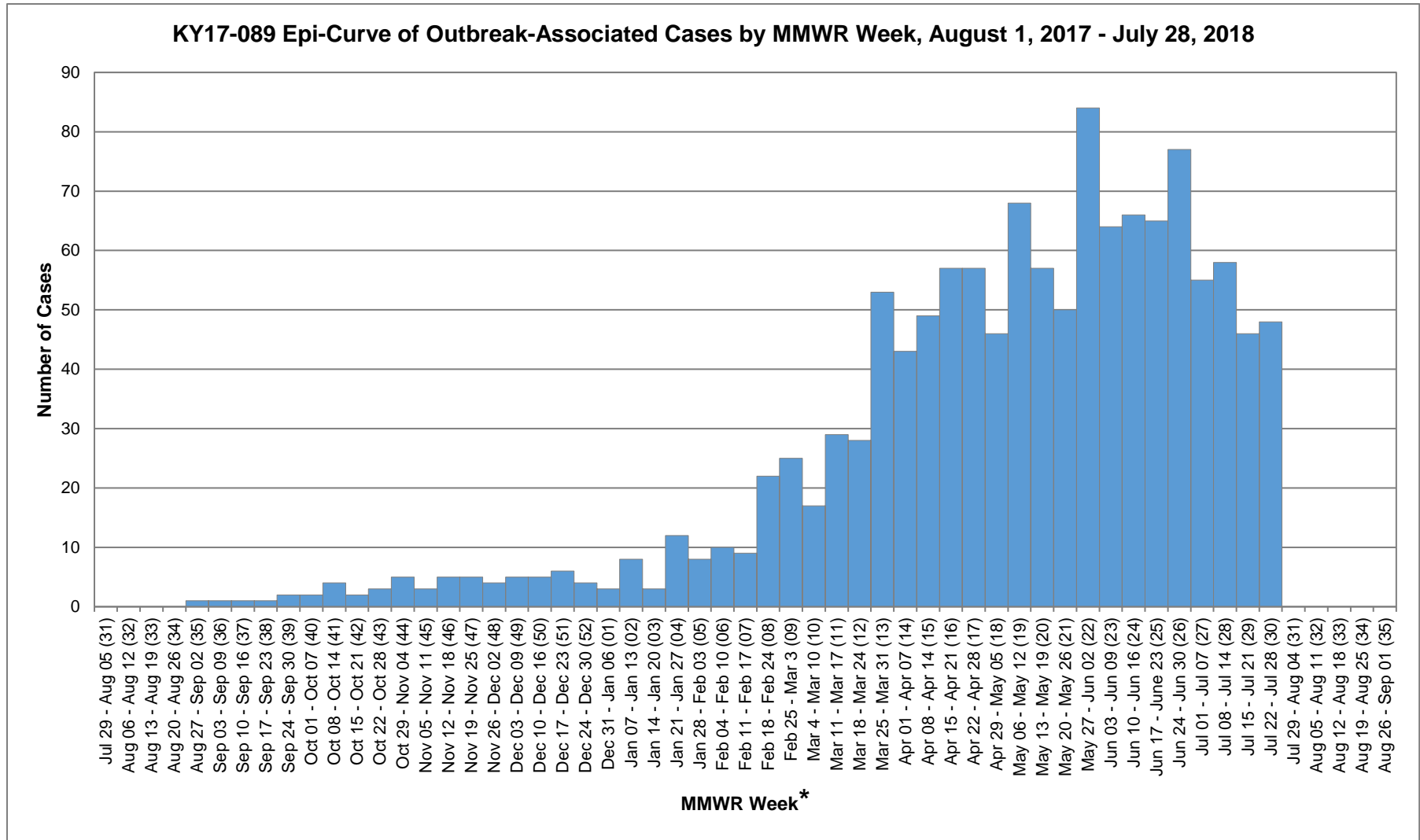
* Risk factor information is unavailable for 226 (17.7%) of all outbreak-associated cases.

† The categories below do not add up to the total number in this count due to other possible risk factor combinations not shown in the table.

At this point in the outbreak, MSM is no longer considered an outbreak-related risk factor. Percentages in this table may have changed due to removing MSM from risk factor combinations.

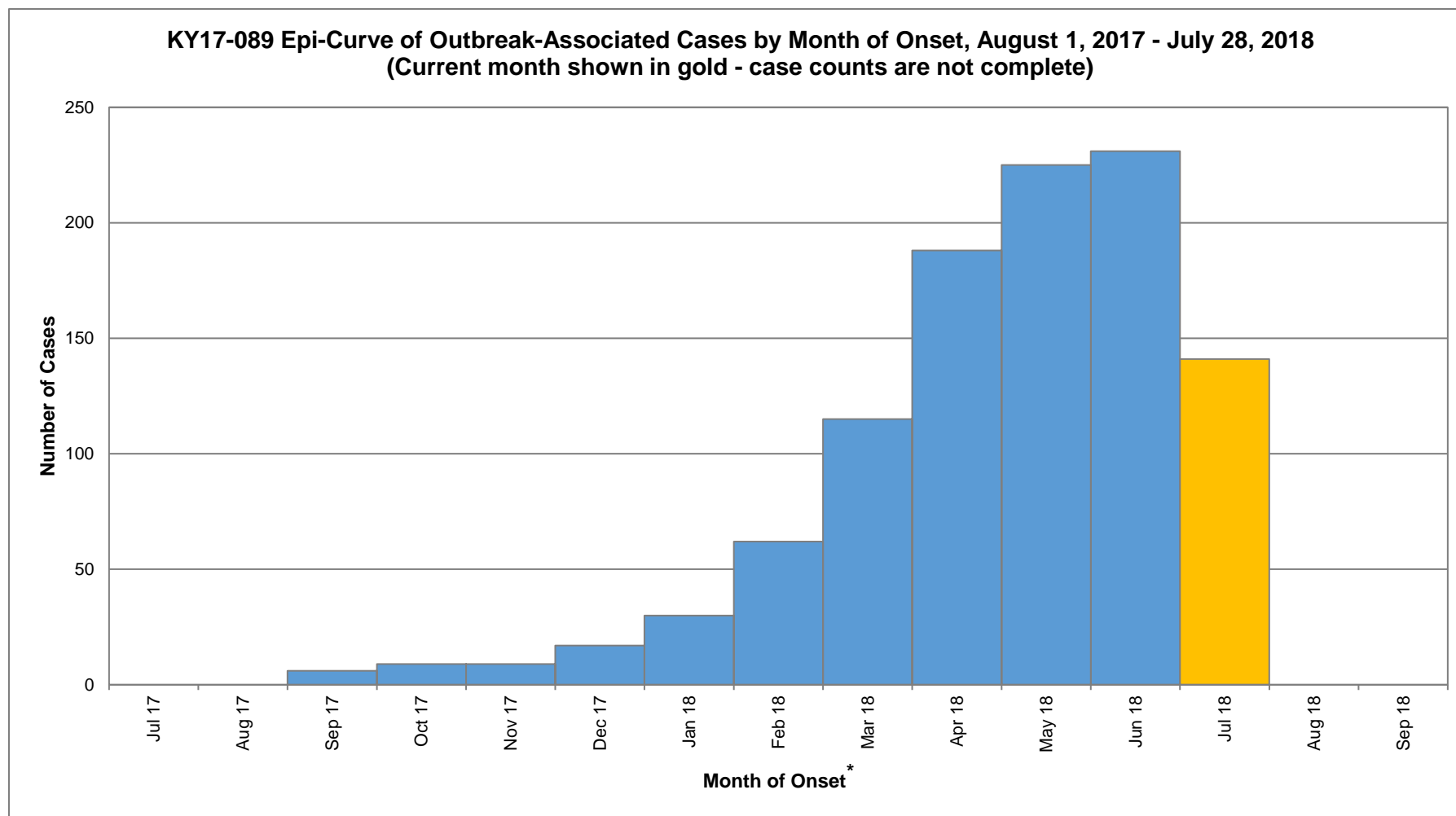
^ 23 MSM cases have been reported. Of those, 7 have reported no other risk factors.

Figure 4: Epidemic-curve (Epi-Curve) of Outbreak-Associated Cases



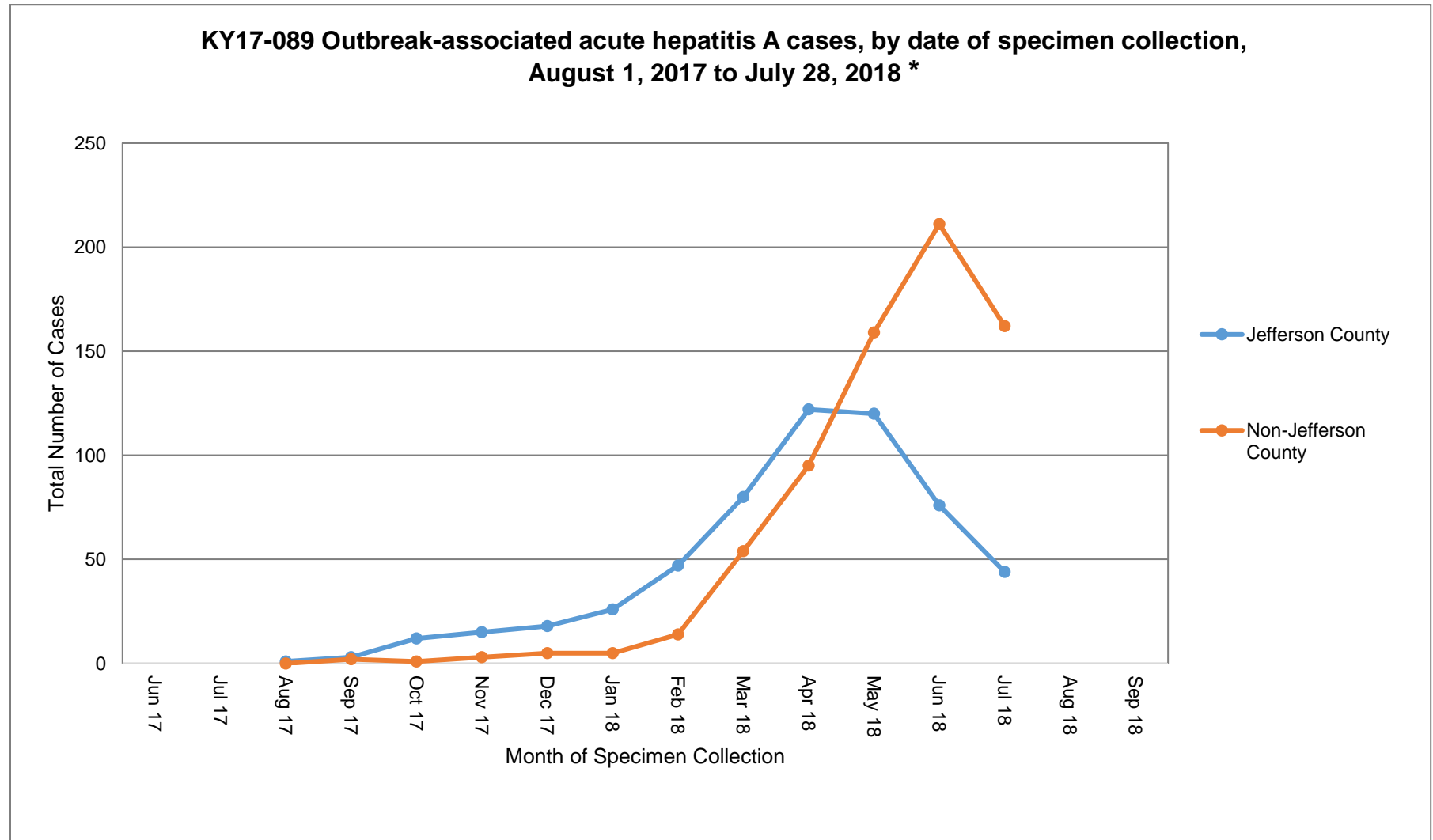
* MMWR weeks are based on date of specimen collection.

Figure 5: Epidemic-curve (Epi-Curve) of Outbreak-Associated Cases by Month of Onset



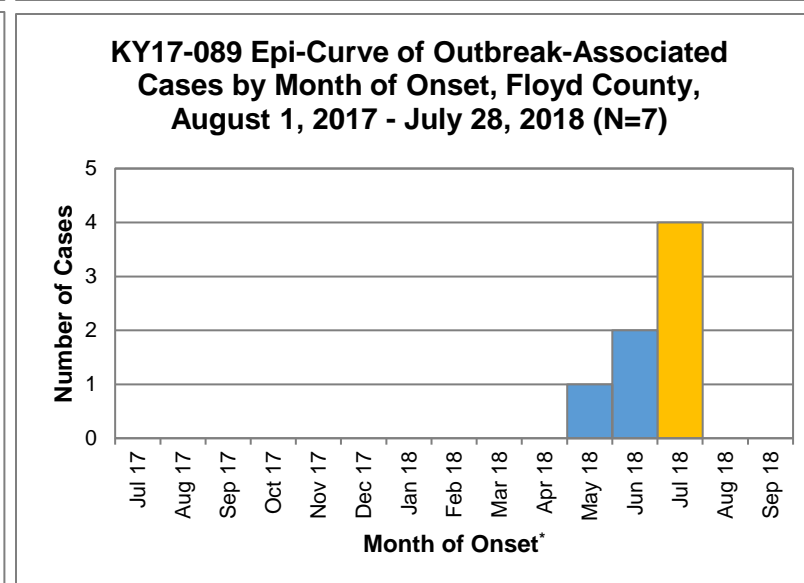
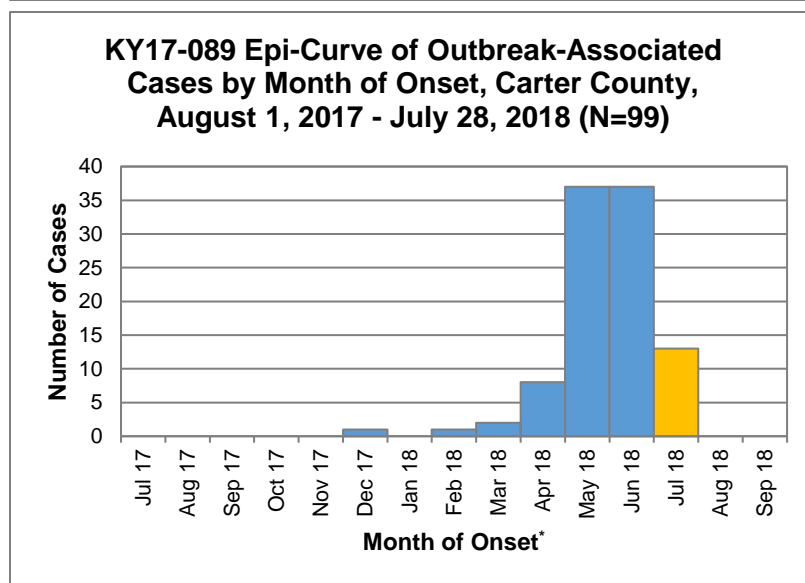
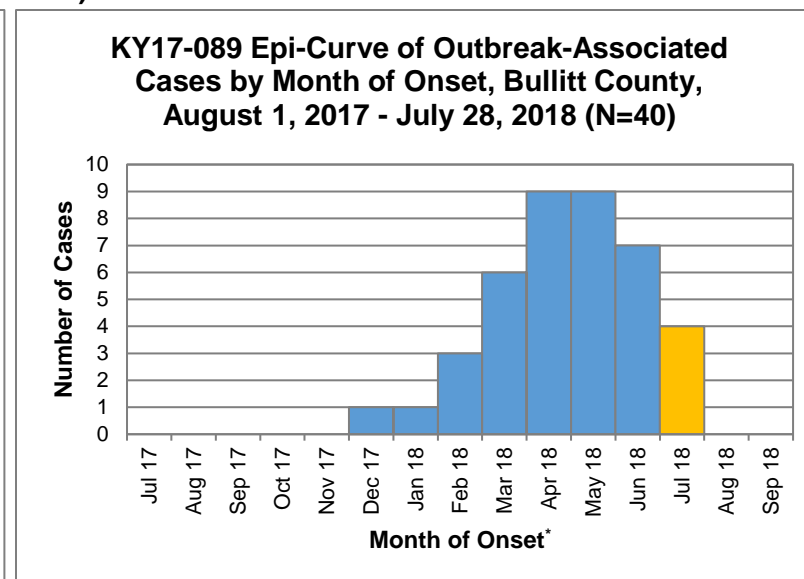
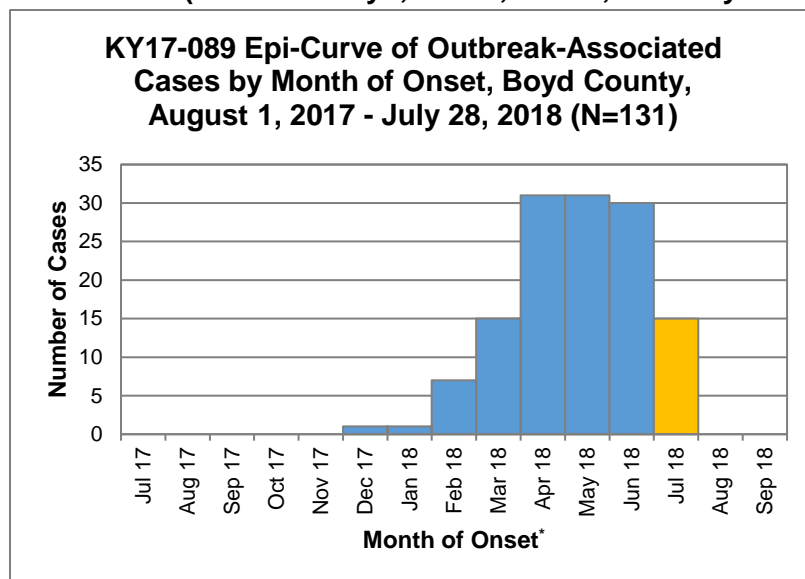
* Date of onset has been reported for 81.0% (or 1033/1276) of cases.

Figure 6: Case Count Comparison of acute hepatitis A cases, Jefferson County versus Non-Jefferson Counties, by Date of Specimen Collection

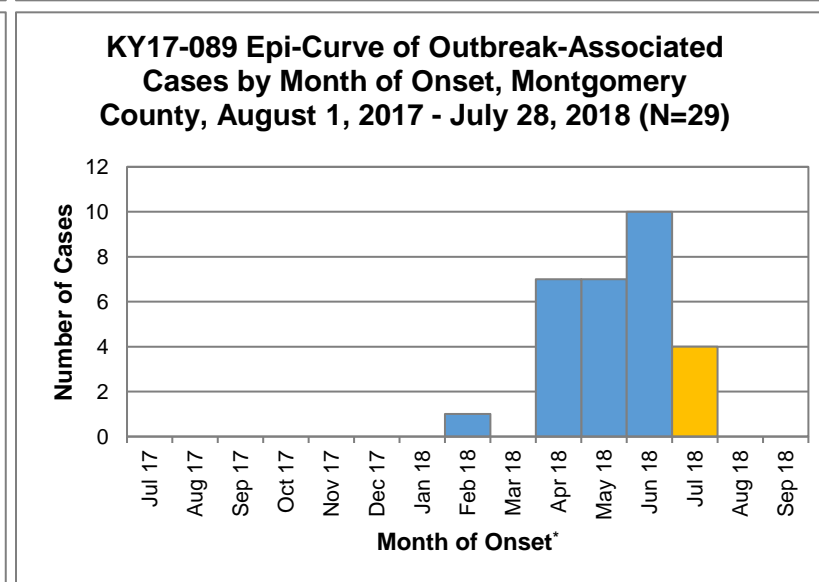
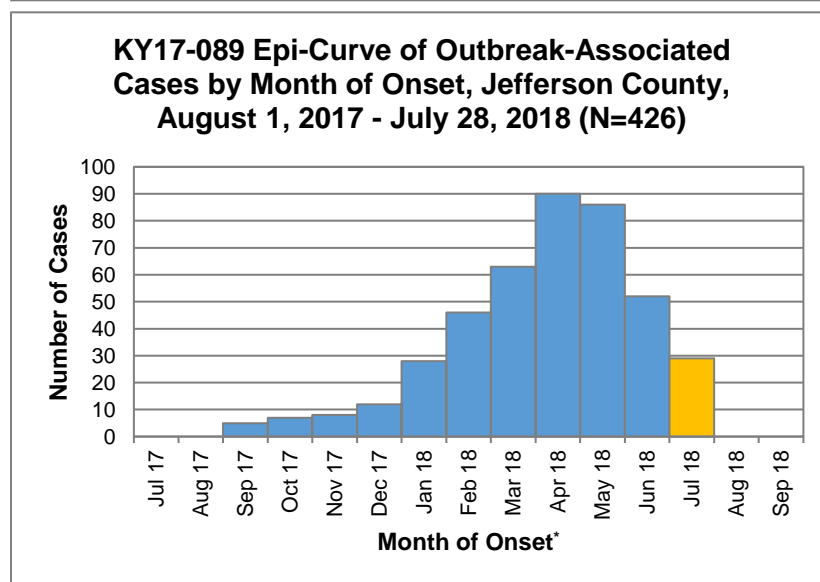
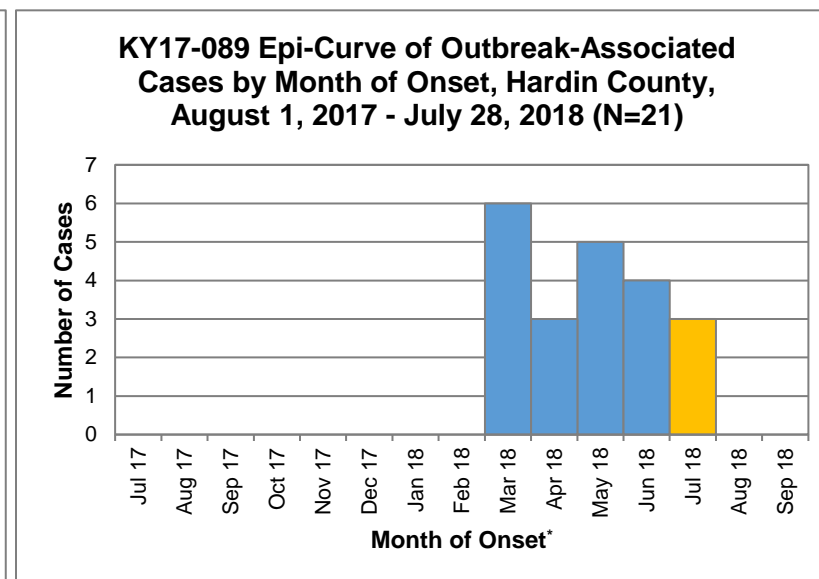
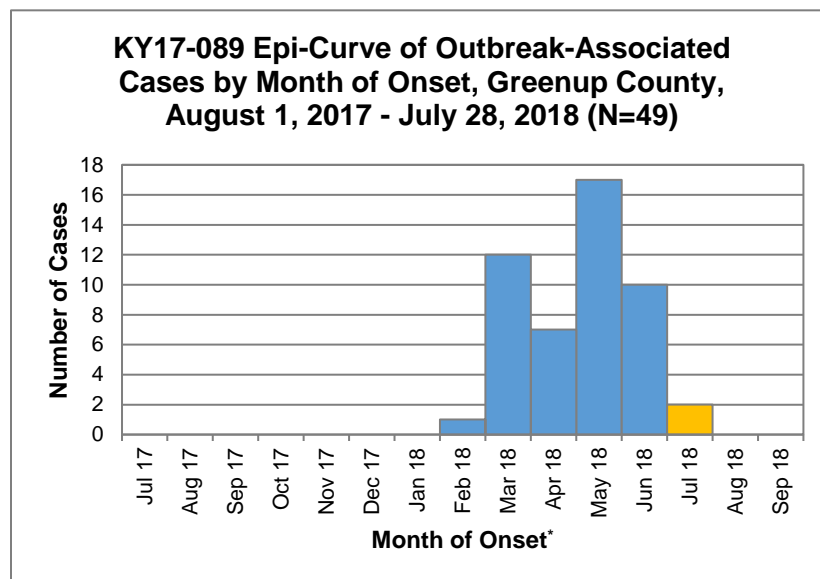


*Current month case counts are considered incomplete.

Figures 7-10: Epidemic-curves (Epi-Curves) of Outbreak-Associated Cases in Counties with at least 10 reported cases, by Month of Onset (Counties Boyd, Bullitt, Carter, and Floyd Counties)



Figures 11-14: Epidemic-curves (Epi-Curves) of Outbreak-Associated Cases in Counties with at least 10 reported cases, by Month of Onset (Counties include Greenup, Hardin, Jefferson, and Montgomery Counties)



Figures 15-18: Epidemic-curves (Epi-Curves) of Outbreak-Associated Cases in Counties with at least 10 reported cases, by Month of Onset (Nelson, Rowan, Shelby, and Warren Counties)

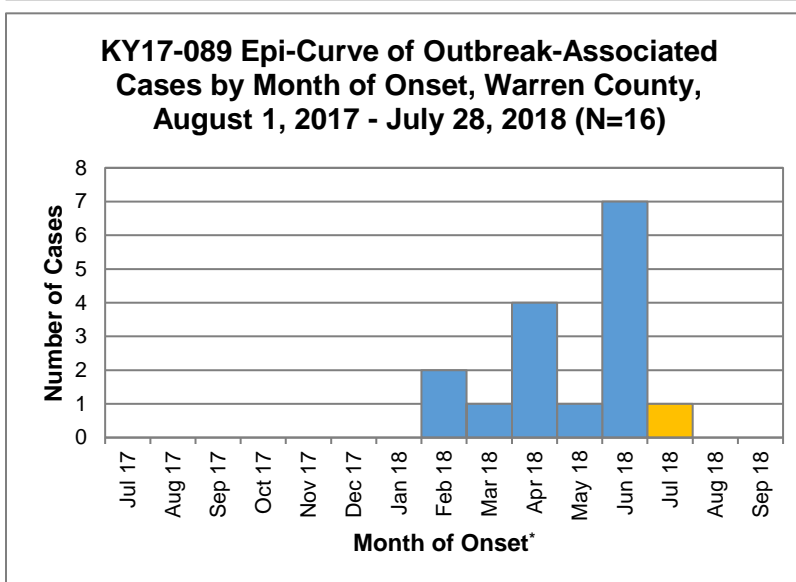
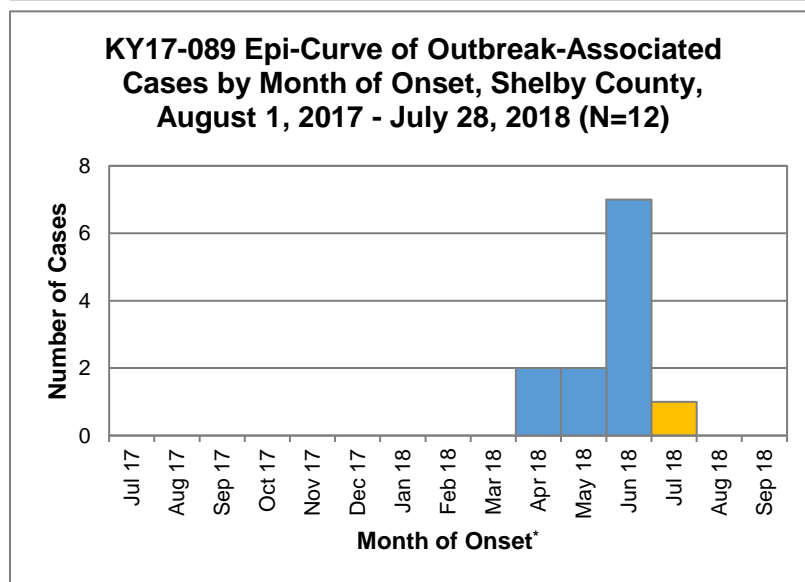
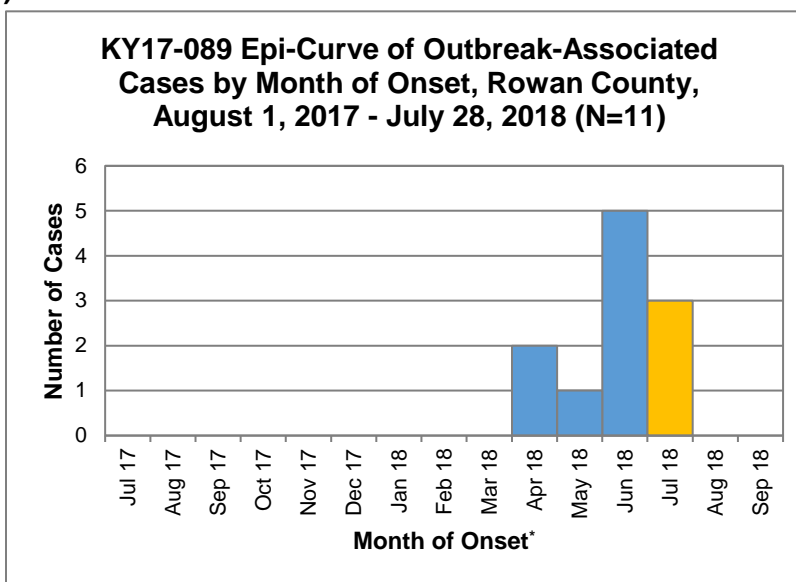
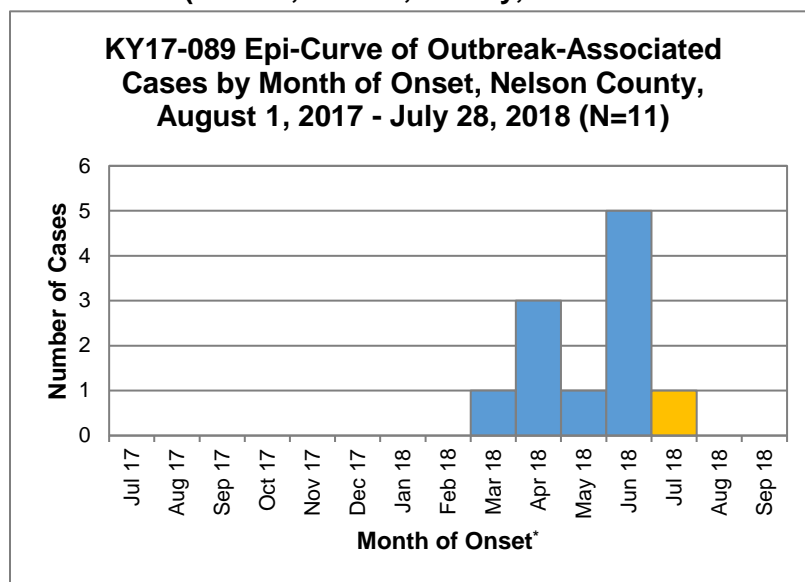


Figure 19: Epidemic-curve (Epi-curve) of Outbreak-Associated Cases in Counties with at least 10 reported cases, by Month of Onset (Whitley County)

